COUNTING ROOM TECHNICIAN
JOB PERFORMANCE MEASURE

TASK CODE: CRT-E05

TASK: Perform Liquid Scintillation Counter Analysis

NAME: _____ **SSN**: _____

REFERENCES:

1. WP 12-RL1313, Packard LSC 2250 Operation/Efficiency Determination
2. WP 12-RL1320, Radioactive Source Control

TERMINAL OBJECTIVE:

Given a sample requiring liquid scintillation analysis, analyze the sample per WP 12RL1313.

CONSEQUENCES OF INADEQUATE PERFORMANCE:

Improper sample analysis
Component damage

HAZARDS (PERSONNEL/EQUIPMENT STATUS):

None

PRE-REQUISITE TRAINING/ TASK COMPLETION:

1. CF 3.00 Series
2. CRT-E02, Perform Liquid Scintillation Counter Response Checks

TOOLS/EQUIPMENT (MATERIALS REQUIRED):

1. Packard Liquid Scintillation Counting System
2. System Logbook
3. Radioactive Sources
4. A sample requiring beta and alpha LSC analysis
5. Beta Activity Sample Data Sheet
6. Alpha Activity Work Sheet

Instructions to Trainee: You shall acquire the necessary references and equipment, and complete all required documentation. Knowledge requirements shall be completed with 80% or greater accuracy. Critical step performance shall be completed with 100% accuracy.

Instructions to JPM Evaluator: The trainee is to perform the terminal objective, without assistance, on the job site. Provide clarification of requirements if requested by the trainee. You are encouraged to ask relevant questions to verify trainee understanding. If the trainee fails this JPM, clearly document the reason for failure and forward to the trainee's manager. Successful completion of this JPM shall be recorded on the trainee's qualification card.

KNOWLEDGE REQUIREMENTS:

Reference	Knowledge Requirement	Pass/Fail
2	State the precautions associated with handling radioactive sources.	
1	Discuss the procedural precautions, limitations and prerequisites.	
1	State the require vials that must be positioned in the cassette for beta activity determination.	
1	State the require vials that must be positioned in the cassette for alpha activity determination.	
1	Discuss the purpose of a "Protocol Plug".	
1	Discuss the types of quenching that can affect the sample results and how each is minimized.	
1	Discuss why the LSC lid must remain closed during all counting activities.	
1	State where all cocktail solutions are to be stored when not actively being used.	
1	Describe the calculations required during alpha sample analysis	
1	Discuss the documentation requirements for beta sample analysis.	
1	Discuss the documentation requirements for alpha sample analysis.	
1	State who must review the documentation upon completion.	

PERFORMANCE REQUIREMENTS:

Reference	Performance Requirement	Pass/Fail
2	Obtain and check out the required radioactive sources/standards.#	
1	Verify all procedural precautions, limitations and prerequisites have been met.#	
1	Verify the system is currently calibrated.#	

1	Verify the LSC system has been response checked in the last 24 hours.#	
Reference	Performance Requirement	Pass/Fail
1	**Counting Samples for Beta Activity.**	
1	Position the required vials in the Varisette Cassette.#	
1	Verify the Alpha Mode Switch is in the OFF position.#	
1	Count the samples for beta activity.#	
1	Generate, Review and Sign the Beta Activity Sample Data Sheet.#	
1	Foward the report to the Laboratory Supervisor for review.#	
1	**Counting Samples for Alpha Activity**	
1	Verify the Alpha Mode Switch is in the ON position.#	
1	Set Alpha Discriminator Switch to 128.#	
1	Position the required vials in the Varisette Cassette.#	
1	Count the samples for alpha activity.#	
1	Determine the Counting Efficiency for all three standards using equation 3.#	
1	Determine the Average Counting Efficiency of the three standards using equation 4.#	
1	Determine the DPM of each sample using equation 5.#	
1	Generate, Review and Sign the Alpha Activity Work Sheet.#	
1	Foward the report to the Laboratory Supervisor for review.#	
2	Return and checkin the radioactive sources.#	

# indicates a critical step

FINAL EVALUATION: PASS FAIL

COMMENTS:

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EVALUATOR SIGNATURE: _____ **DATE**:_____

TRAINEE SIGNATURE: _____ **DATE**:_____

MANAGER SIGNATURE: _____ **DATE**:_____